

SOCIETIES AND ACADEMIES

LONDON

Zoological Society, January 17.—Prof. Newton, F.R.S., V.P., in the chair. The Secretary read a report on the additions to the Society's menagerie during the month of December 1870, amongst which were particularly noticed a specimen of the Two-toed Amphiuma (*Amphiuma didactylum*), and an example of Erxleben's Monkey (*Cercopithecus Erxlebeni*). On concluding his report the Secretary called attention to the registers of accessions to and deaths in the Society's menagerie, which lay on the table, and showed, in contradiction to statements recently published by Dr. Gray, that they were faithfully kept up, and that a revised abstract of the former was published every year as an appendix to the Society's "Proceedings."—Mr. Howard Saunders exhibited and made remarks on a series of skins of eagles belonging to *Aquila imperialis*, *A. bifasciata*, and *A. naevioides*.—A letter from Mr. R. Brown was read, recommending the introduction of hogs into countries where poisonous serpents were frequent, in reference to a communication from the Governor of Santa Lucia, read at the last meeting of the Society.—Mr. Jules Verreaux made some remarks on the facility with which the colouring matter in the wings of the Touraous was soluble, and stated that he had observed it washed out in the living birds by heavy rain.—Mr. J. E. Harting exhibited and made remarks on a specimen of Sabine's Snipe, recently killed in Ireland.—Mr. Sclater made some remarks on the amphibians usually called Axolotls, now living in the Society's gardens, and pointed out that if what Prof. Baird had recently stated were correct, these were not the true Axolotl of the lakes of Mexico (*Siredon mexicanum*), but the larval form of a known Salamander—*Amblystoma macrotium*, Baird. Mr. Sclater likewise exhibited a typical specimen of *Ateles variegatus*, Wagner, and pointed out its unquestionable identity with *A. Bariletti*, Gray.—Mr. J. W. Clark read a paper on a fine skull of the Narwhal (*Monodon monoceros*) with two tusks in the Cambridge University Museum, to which were added full particulars as to all the known bidentate skulls of this animal.—A paper was read by Dr. J. C. Cox, C.M.Z.S., containing descriptions of some new species of Australian land-shells.—Prof. Newton exhibited and made remarks on some new and rare birds' eggs, amongst which were those of the Sanderling (*Calidris arenaria*) and Lesser Sheath-bill (*Chionis minor*).—Mr. St. George Mivart pointed out the characters of a new genus of Insectivorous Mammals proposed to be called *Hemicentetes*, founded on the *Erinaceus madagascariensis* of Shaw, to which was added a revised synopsis of the known genera of the order Insectivora.—A communication was read from Mr. A. G. Butler, containing descriptions of some new species of Exotic Lepidoptera.—Mr. G. F. Angas communicated a list of additional species of marine mollusca to be included in the Fauna of Port Jackson and the adjacent coasts of New South Wales.—Mr. Sclater read some notes on the typical specimens of *Tyrannula mexicana*, Kaup, and *T. barbirostris*, Swainson.—A second communication from Mr. Sclater contained remarks on certain species of *Dendrocolaptidae*, in the collection of the Smithsonian Institution.

Geological Society of London, January 11.—Joseph Prestwich, F.R.S., President, in the chair. The following communications were read :—1. "On the older Metamorphic Rocks and Granite of Banffshire," by T. F. Jamieson, F.G.S. The author indicated three divisions in the metamorphic strata a Banffshire :—At bottom of great thickness of arenaceous beds, more or less altered into quartz-rock, gneiss, and mica-schist; next a series of fine-grained clay-slates, in the midst of which is a bed of limestone; and then again an upper group of arenaceous strata. The author stated that the arrangement of the rocks is very similar to that occurring in Bute and Argyleshire. He remarked that the general texture of the beds is fine-grained, and considered that they were probably deposited in the depths of the sea, off the mouth of a great river, the deposition of the argillaceous strata having taken place during a period of increased depression. The deposition of the beds was said to have probably taken place after the formation of the (Cambrian) Red Sandstone and Conglomerate of the North-west Highlands, or in Lower Silurian times, the river by which the sediment was brought down being supposed to have drained the great Laurentian region to the north-west. After their accumulation the author supposed that "a glow of heat from beneath" approached them, causing expansion and the wrinkling of the mass into folds running from S.W. to N.E. The granites were

considered by the author to owe their origin to the fusion and recrystallisation of the arenaceous beds. Prof. Ramsay observed that the general section wonderfully corresponded with that given many years ago by Sir Roderick Murchison, of the Silurian and Laurentian rocks at Cape Wrath, and it seemed to him that the large views originally propounded by Sir Roderick were confirmed by the author. He was glad that the metamorphic origin of granite was supported by Mr. Jamieson, as he had held that view for several years, and he was pleased to find that opinions which had formerly met with so many opponents were constantly gaining acceptance. The fusion of these sedimentary rocks by metamorphic action was not identical with the fusion of lava, but their fluidity might be the same; and if that were the case there could be no difficulty in accepting the possibility of the injection of such fused rocks into crevices and fissures. The crumpling of the beds, however, was due to more extensive causes than those contemplated by the author. The proportion of igneous rock injected into contorted rocks, like those of North Wales, was almost infinitesimal, and the crumpling could hardly be due to mere local causes.—Prof. Ansted referred to what he had observed in the north-west part of Corsica, where about 40ft. of granite were distinctly interstratified between perfectly unmetamorphosed beds of sandstone and limestone, without any alteration at the points of contact, such as would be produced by an igneous rock. He also cited the crumpled strata in the Maritime Alps, in which the granites were parallel with the other beds, and seemed to form part of them. Mr. Carruthers mentioned that the late Prof. Fleming twenty years ago had taught the same doctrine as to the nature of granite as that held by the last speakers.—Mr. David Forbes agreed that the crumpling of the strata was not due to the intrusion of any eruptive rock. He completely disagreed with Prof. Ramsay and the author as to the origin of granite, and maintained that, in the sedimentary rocks traversed by the granite, the requisite ingredients for the formation of granite did not exist. The proportion of felspar in quartzose rocks was infinitesimally small, as compared with that entering into the composition of granite. He could not accept the notion of the heat from the interior approaching gradually to some portion of the surface. Prof. Ramsay, in reply to Mr. Forbes, maintained that some of the slaty rocks of Wales, by extreme metamorphism, would pass into some kinds of granite. As to the conditions of metamorphism of the rocks, this process must have gone on at a time when these older rocks were overlain by a great thickness of more recent beds which have since been removed by denudation. 2. "On the connection of Volcanic action with changes of Level," by Joseph John Murphy, F.G.S. The author commenced by discussing the chemical theory of volcanic action, which he considered he had disproved. He remarked on the coincidence of volcanic action with elevation of the surface, but stated his opinion that the elevation of one part of the earth's surface and the depression of another, are the results of a movement of subsidence in the following manner :—The interior of the earth is constantly cooling, and as it cools it must contract. But the cold strata of the surface cannot contract in the same proportion; and as they must remain in contact with the core, they are compelled to form folds and ridges. The breaking out of volcanoes is due to the breaking of part of the earth's crust by these foldings. According to the author, "volcanic action is not the cause, but the effect of secular changes of level; and secular changes of level are due to the subsidence of the surface on the interior, as the interior contracts in cooling." 3. "On some points in the Geology of the neighbourhood of Malaga," by Don M. de Orueba. Communicated by Sir R. I. Murchison, F.R.S., F.G.S. After referring to the writings of previous authors upon the geology of the south of Spain, the author noticed a mountain-chain near Antequera, one branch of which, known as the "Torcal," he described as presenting a very singular appearance from the huge blocks of stone of which it is composed. The division of the rock into separate blocks, often of the most fantastic shapes, was attributed by the author to denudation by water. The "Torcal" consists of a compact limestone, generally of a red colour, resting conformably on the east upon a fine-grained white oolitic marble of considerable thickness. At the divisional line between the two formations many Ammonites were said to occur, and three of these were doubtfully identified with *A. giganteus*, *biplex*, and *annulatus*. These species would indicate the deposit to be probably of Portlandian age. The plain of Antequera was considered by the author to consist of Tertiary formations. One of these, at the south of the city, he regarded as analogous to the

"Calcaire grossier." He mentioned indications of the presence in the vicinity of a Miolitic marble, and of a limestone containing Nummulites. Between Antequera and the Torcal, he noticed a small calcareous deposit containing many forms of *Gryphaea*. The paper was illustrated by photographs of two scenes on the Torcal, and of several species of Ammonites. Prof. Ansted remarked that the condition of the Torcal was similar to that prevailing in many other limestone districts, and was probably due to subaerial denudation. Mr. W. W. Smyth mentioned that he had lately had an opportunity of examining, at Cadiz, a collection of fossils formed by Mr. Macpherson in that district, which also contained specimens of Ammonites. It appeared that there were large tracts in which the rocks appeared almost destitute of fossils, which rendered their classification extremely difficult; and great credit was due to the author for his exertions in a country where unfortunately so little interest was taken in geology. He mentioned that some of these unfossiliferous rocks had been classified as Silurian by some French geologists; but for this there was not the slightest evidence. It appeared far more probable that they were of Jurassic age. Some red beds, which had been called Triassic, were also in all probability Tertiary. Mr. Gwyn Jeffreys, who had examined several collections in Spain and Portugal, stated that he had been much struck with the absence of newer Tertiary fossils, the latest being of Miocene age. These latter presented a tropical aspect, and differed from the mollusca now inhabiting the neighbouring seas. Mr. Blake was not satisfied with the determination of the Ammonites, which appeared to him rather of Cretaceous than Jurassic forms. Mr. Tate observed that the French geologists had determined the existence in Spain of the whole Jurassic series, from the Lower Lias to the Portlandian beds; and, judging from the photographs, he should consider the Ammonites to be Jurassic. Mr. Boyd Dawkins cited the remains of *Rhinoceros etruscus*, procured by the late Dr. Falconer at Malaga, as affording evidence of the presence of Pliocene age in that district. Prof. Duncan mentioned that he had found corals of the genus *Favellum*, such as were found in the Tejares clays, in recent deep-sea dredgings in the Atlantic, and among specimens brought from Japan.

Linnean Society, January 19.—Mr. G. Bentham, president, in the chair. "Historical Notes on the Radix Galangæ of Pharmacy," by D. Hanbury, F.R.S. The introduction of this drug into Europe appears to have been due to the Arabians; its common use in the West does not date earlier than the 15th century. It is an aromatic stimulant, and may be used to replace ginger; but the high virtues ascribed to it by the ancients cannot be sustained.—"On the Vegetation of the Solomon Islands," by Mr. J. Atkin. The writer had spent some months in these little-known islands, chiefly in Christoval, the southernmost of the group, which lies between 10° and 11° S. lat., and between 162° and 163° E. long. The whole group extends for about 300 miles eastwards to Papua, over 4½° of longitude and 4° of latitude. They are mainly of volcanic origin; the low lands consist of coral, which reaches to an elevation of from 300 to 500 feet. Earthquakes are very frequent, almost every month, but not very severe. The nearest active volcano is Tinkalu, 200 miles to the westward. The wet season is in winter, especially the early part of July, when an enormous quantity of rain falls. The temperature is remarkably uniform; the writer had never seen the thermometer below 75° F. or above 88° in the shade, or 132° in the sun; the air is extremely damp. The highest land in Christoval is from 3,000 to 4,000 feet elevation, and is probably granite. The island is entirely covered with vegetation, except near the sea. Grasses are very few. In the forests are very few trees with trunks five feet in diameter. The bush is very thick, and climbers numerous. One Aroid was noticed, and eight or nine Orchids, all epiphytal. Several Zingibers, including the true ginger, native. Three or four species of Pandanus, which are extremely variable. The cocoa-nut and sago palms are native, the latter growing eighty feet high; also the areca-palm, and the betel-nut; the latter is universally chewed. The yam is grown, as well as five other roots probably belonging to the same order. The bread-fruit is abundant; and a variety of mango grows wild, as well as a bitter orange. The leaf of the sago-palm is used for thatch. There is a *Cycas* thirty or forty feet high, which is sometimes branched. Of ferns the genera most observed were *Asplenium* and *Acrostichum*; but no tree-ferns, although they are so abundant in the neighbouring Banks's group. Two *Convolvuli* were noticed and an *Ipomoea*; two *Hibisci*, two *Casuarinæ*, and two *Acacias*, a tree and a shrub; also a *Begonia*, the

same species as in Banks's group; and a handsome species of nettle. The men are short, with dark curly hair. They use spears, and sometimes bows and arrows; their canoes are very beautifully ornamented. Animals are comparatively few. Dogs and pigs are abundant, both apparently native; also opossums and a small rat. There are many beautiful birds; the white cockatoo is never seen, though so abundant in islands separated by a channel only fifteen miles broad. Insects are plentiful. Snakes, both land and water, abound, but none are poisonous. Scorpions are numerous but small. Alligators were found, but not abundant. Frogs plentiful; lizards innumerable; one iguana was seen four feet long.—"Note on *Byrsanthus*," by Dr. M. T. Masters, F.R.S. The chief interest of this paper lay in the author's exposition of the relation between the glands and the perfect stamens.

DIARY

THURSDAY, JANUARY 26.

ROYAL SOCIETY, at 8.30.—On the Mineral Constituents of Meteorites. XII. The Breitenbach Meteorite: Prof. Story-Maskelyne, F.R.S.—On the Organisation of the Calamites of the Coal Measures: Prof. W. C. Williamson, F.R.S.—On Approach caused by Vibration (a Letter to Prof. Guthrie) Sir W. Thomson, F.R.S.

ROYAL INSTITUTION, at 3.—Davy's Discoveries: Dr. Odling. SOCIETY OF ANTIQUARIES, at 8.30.—On Remains on the Site of Keynsham Abbey: Rev. H. M. Scarth, M.A.

FRIDAY, JANUARY 27.

ROYAL INSTITUTION, at 9.—Dr. Odling.

QUEKETT MICROSCOPICAL CLUB, at 8.

SATURDAY, JANUARY 28.

ROYAL INSTITUTION, at 3.—Laws of Life revealed in History: Rev. W. H. Channing.

SUNDAY, JANUARY 29.

SUNDAY LECTURE SOCIETY, at 3.30.—The Nature of the Earth's Interior: D. Forbes.

MONDAY, JANUARY 30.

VICTORIA INSTITUTE, at 8.—Archæology: Rev. J. Titcomb. LONDON INSTITUTION, at 4.—On the First Principles of Biology: Prof. Huxley (Educational Course).

TUESDAY, JANUARY 31.

ROYAL INSTITUTION, at 3.—Nutrition of Animals: Dr. Foster. ANTHROPOLOGICAL SOCIETY, at 8.—On some of the Racial Aspects of Music: Joseph Kaines, F.A.S.L.

WEDNESDAY, FEBRUARY 1.

SOCIETY OF ARTS, at 8.—On the Preservation of Vegetables: O. Buchanan.

THURSDAY, FEBRUARY 2.

ROYAL SOCIETY, at 8.30. SOCIETY OF ANTIQUARIES, at 8.30. LONDON INSTITUTION, at 7.30.—On the Action, Nature, and Detection of Poisons: F. S. Barff. LINNEAN SOCIETY, at 8.—Natural History of Deep-Sea Soundings between Galle and Java: Capt. Chimmor, R.N. CHEMICAL SOCIETY, at 8.—On the Development of Fungi in Potable Water: Dr. Frankland. ROYAL INSTITUTION, at 3.—Davy's Discoveries: Dr. Odling.

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